2. REFLUX METHOD

The reflux setup, shown in Figure 2, returns dry sample back to the dryer for use as the purge after it has gone through the analyzer. Since this method uses all of the dry sample as the purge gas, only the sample flow required for analysis passes through the dryer. This results in high drying efficiency.

The vacuum on the purge gas should be at least 15" of Hg, with a higher vacuum preferable. This vacuum level is necessary to provide the desired 2:1 purge-to-sample flow ratio based on the actual volumetric flow.

NOTE: Pressure units must be in absolute terms.

\[
V_p = \frac{V_s}{(P_s/2P_v) - 1}
\]

Where:
- \(V_p\) = Purge flowrate (indicated on flowmeter)
- \(V_s\) = Sample flowrate (indicated on flowmeter)
- \(P_s\) = Sample pressure (in absolute units)
- \(P_v\) = Purge pressure (in absolute units)

3. SPLIT SAMPLE METHOD

The split sample method, shown in Figure 3, diverts some of the sample from the main stream to be used as the purge gas. More sample passes through the dryer than is required for the analysis, lowering the drying efficiency somewhat.

The following equation can be used to determine the purge flow rate required for the split sample method. Any units may be used as long as they are consistent.

NOTE: Pressure units must be in absolute terms.
**TO ROTATE FITTINGS**

1. Turn locking screw 2-3 turns on end of dryer (not necessary to take screw out).
2. Position fittings as needed. Do not rotate more than 180 degrees from original position and check to see tubing inside shell is not twisted.
3. Align purge port to hole in shell tube (see Figure 4).
4. Tighten locking screw.

**TO DISASSEMBLE DRYER**

1. Loosen locking screws on both ends of dryer.
2. Insert eraser end of pencil into one sample port until it rests on tube header face.
3. Hold dryer vertically and place other end of pencil down onto a hard, slip resistant surface.
4. While supporting shell tube, push lower end fitting down with consistent pressure until it slips off shell tube. Do not attempt to pull fitting from shell tube; doing this is likely to damage dryer element tubing.
5. Repeat steps 2-4 for other end.
6. Remove one o-ring from tube header (see Figure 5).
7. Pull tube element from opposite end of dryer.
8. Repeat steps 4-7 for opposite end.

**TO ASSEMBLE DRYER**

1. Install one thick o-ring onto grooved tube header (Refer to Figure 6).
2. Slip opposite tube header into dryer shell.
3. Install other thick o-ring onto groove.
4. Push one thin o-ring into groove inside coupling (for SS and AL shells slip o-ring on shell across two holes).
5. Firmly push coupling over tube header.
6. Align purge port with hole in shell tube.
7. Tighten locking screws until underside of screw head contacts top of boss.
8. Repeat steps 2-4 for other end.